

Towards a Collaborative Process of Search

Abstract: The absence of Collaborative Search software is due to three different operational complexities: (1) varying time contributions on the part of participants, (2) varying contributor search inclinations, and (3) unresolved search context obstacles. This paper addresses these complexities and describes a search system designed to allow true Collaborative Search. It also introduces the concept of **SearchLets**.™

Collaboration is a word currently much in usage, concerning both the web and networks, and their associated software. There is collaborative software, and groupware, and collaborative platforms, and social software and specific software to facilitate pursuing various common group objectives – to author documents, build a dictionary, manage projects.. Definitions of collaboration are many and varied. However, none of this collaborative software involves search.

Search software, which is truly collaborative (Collaborative Search), requires a perspective and implementation approach, which integrates not just various contributions, and contribution timeframes, but also differing contributor work styles.

Over the centuries, Mankind's drive to acquire knowledge may be classified into two general approaches: well-focused and stochastic - somewhat random-like in a given direction. Any successful attempt to extend collaborative benefits to the internet or networked search environment will need to design around these two well-worn approaches. Consider a library patron searching for a book about ancient Egypt. Some will go to the card catalog, or online index, and identify a specific book or more. Some will go to the general area that has books on Egypt and just randomly browse the various books. Some will integrate both approaches.

Collaboration as an Act

The reality of collaborative behavior is that multiple parties must act. These actions may be simultaneous, may be asynchronous with respect to time, and may vary in the pursuit of goal directedness (well-focused vs. stochastic). To be effective, collaborative search must support these different behaviors. This means supporting simultaneously activity geographically dispersed, as well as supporting individual activity operating alone, with later collaborative actions at some future time(s).

Collaborative Search ... as Search

Collaborate Search ... is still search. Complicating the above requirements, one needs to recognize that, unless additional capabilities are added, adding collaborative capabilities to search, might simply compound the lack of context and poor relevancy issues already present in current day internet search. The only thing worse than an ambiguous context to a one party search, is multiple points of ambiguity from multiple participants.

Search is a process. Particularly in the collaborative sense it needs to be interactive and accommodate changes. Sharing such a process along the lines discussed above necessitates saving modifiable search artifacts of previous search efforts.

The Four Faces of Collaborative Search

Depending upon the goal, and the use of the search process, Collaborative Search may be (1) simple distributed, (2) leveraged distributed, (3) interactive, or (4) coordinated.

- **Simple Distributed Collaborative Search** involves one party building a search framework and then allowing access to this special search subject by multiple participants. Example: one searcher pioneers a search effort to search all the Ivy League University websites for admissions data, and then makes it available to anyone. (Note that the single effort of one search author might be used by thousands of users.)
- **Leveraged Collaborative Search** involves the building upon the previous effort(s) of one or more participants by at least one additional later participant. Example: one searcher pioneers a search effort to search all the Ivy League University websites for admissions data, as above. A second searcher, inherits this effort, and expands it to include scholarship applications and increases the scope to the top 25 Universities.
- **Interactive Collaborative Search** involves multiple contributions, over time, from two or more participants. Most usually, the efforts of one participant build on the results of another and the process goes back and forth increasing the value of the results. Example: two university colleagues, one in New York and one in Tokyo, review the search results and make modifications for improving those results. Japan – 14 hours ahead of New York – makes changes while New York is sleeping. New York studies the new results and makes changes while Tokyo sleeps. This process goes back and forth, interactively, for a week.
- **Coordinated Collaborative Search** involves a team of participants with an acknowledged leader. The team has no size or geographic requirements, but the leader must promote some methodology (formal or ad hoc), some sequence of actions, and some allocation of effort across the team. Example: a project manager divides search requirement efforts across several team members. The manager outlines what is required from each team member.

SearchLets

Imagine an applet acting as a search agent ... a SearchLet. A Searchlet operates as a special source of selected urls focusing on a subject, and queries sent to it effectively result as a special purpose vertical search engine.

- Users may embody search activity into a stored search process, called a *SearchLet*. These may be shared as various subjects with the corporate community allowing for retention of knowledge as well as time saving. In addition, the wider business community may also benefit from using these Searchlets if the company so desires, or can derive marketing advantage from it.
- Colleagues may inherit a SearchLet (search subject) and update and change it to a different search subject to be saved as another candidate SearchLet. The whole process is documented so decision makers may review the process for updates. This allows searchers to build upon the previous work of others and create Searchlets which function as mini vertical search engines. Searchers may define sources – intranet and internet – rules, and related keywords to perform vertical or specific subject searches and then share it with their peers.

Ant Leap's Collaboration Engine – a platform for improved search

- **Build once – use many times**- A corporate searcher may construct specific, or vertical search, subjects on demand – capturing the search sources they select in one location. The

user may add rules and save the search subject for repeat use – saving valuable research time.

- ***Share, Leverage and Document*** - Users who build and author SearchLets, may share these subjects with the corporate community allowing for retention of knowledge and time saving. Colleagues may inherit the SearchLet and update and change it to a different focus or scope of search to be also used by others. The whole process is automatically documented so decision makers may review the process for updates.
- ***Platform Features*** - The Axioma platform comes with simple to use tools which dramatically improve result relevancy. Our dashboard consists of word Clusters, document types and a zoom of search result sets – so user may zoom in and out finding relevant results faster.
- ***Combine Multiple Sources*** - One of the main challenges of a corporate searcher today is the fragmented existence of search sources – different intranet search engines, external search engines, and subscription type sources. Axioma is a post search technology that could tap into different sources of semi-structured and unstructured documents retrieval systems and consolidate them in real time. Axioma has partnered with both IBM and Yahoo to deliver comprehensive solution results.

Conclusion

Significant efforts are devoted to search and analysis. Any capabilities allowing colleagues to collaborate on search should be examined.

The quality of decision-making, reduction of duplicated as well as drained resources, and ultimately improved ROI are significant benefits of Ant Leap's Collaborative Search Platform. This is especially relevant in departments that rely heavily on research such as equity and other financial instrument research efforts